

Title (en)  
ULTRASONIC LIQUID DELIVERY DEVICE

Title (de)  
ULTRASCHALL-FLÜSSIGKEITSABGABEEINRICHTUNG

Title (fr)  
DISPOSITIF DE DÉLIVRANCE DE LIQUIDE À ULTRASONS

Publication  
**EP 2185987 B1 20130227 (EN)**

Application  
**EP 08789369 A 20080718**

Priority  
• IB 2008052906 W 20080718  
• US 78090107 A 20070720

Abstract (en)  
[origin: US2008237367A1] An ultrasonic liquid delivery device including a housing having an internal chamber and at least one exhaust port communicating with the internal chamber. An ultrasonic waveguide in the internal chamber ultrasonically energizes liquid within the chamber prior to the liquid being exhausted through the exhaust port. The waveguide includes a valve member movable relative to the housing between a closed position closing the exhaust port, and an open position. An excitation device is operable in the open position of the valve member to ultrasonically excite the ultrasonic waveguide to atomize liquid exiting the exhaust port.

IPC 8 full level  
**G05D 7/00** (2006.01)

CPC (source: EP US)  
**F02M 27/08** (2013.01 - EP US); **F02M 61/10** (2013.01 - EP US); **F02M 69/041** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 2200/21** (2013.01 - EP US); **F02M 2547/003** (2013.01 - EP US)

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)  
**US 2008237367 A1 20081002; US 7963458 B2 20110621**; BR PI0813028 A2 20200526; CN 101802740 A 20100811;  
CN 101802740 B 20120808; EP 2185987 A2 20100519; EP 2185987 A4 20110302; EP 2185987 B1 20130227; KR 101519677 B1 20150512;  
KR 20100033514 A 20100330; MX 2010000774 A 20100401; WO 2009013689 A2 20090129; WO 2009013689 A3 20090604

DOCDB simple family (application)  
**US 78090107 A 20070720**; BR PI0813028 A 20080718; CN 200880108134 A 20080718; EP 08789369 A 20080718; IB 2008052906 W 20080718;  
KR 20107001260 A 20080718; MX 2010000774 A 20080718